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LEGENDS AND LORE OF THE HEALING ART

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II

Venesection

The origin of venesection was another matter that excited speculation in the ancient world. Pliny* says that the hippopotamus invented blood-letting and taught the art to man. This animal, he says, when surfeited with blood, seeks out the sharp point of a newly-cut reed, and pressing against it, opens one of the veins in the thigh, to its immediate relief; then it plasters the wound over with mud. Buffon, quoting P. Labat, repeats the story, substituting a sharp-pointed rock for the reed, and with the picturesque addition that the animal agitates its body to promote the flow, and when it thinks it has lost a sufficient quantity rolls in the mud so as to close the wound. With respect to the various observations involved in these statements, it is the case that the hippopotamus is very prone to exhibit wounds, in spite of the fact that in most parts the skin is two inches thick. These wounds seem to arise in two ways: most commonly as the result of fights, as male hippopotami in the wild state are constantly fighting, regardless of the pairing season, and a wounded animal is often furiously attacked by a comrade; but also as the result of rubbing themselves against any convenient projection, a habit that is common among animals in confinement, and even among such domesticated animals as cows, sheep, and pigs. Again, it is a habit of both hippopotamus and rhinoceros to roll in the mud of river-banks till they are plastered all over, and the mud would certainly adhere more readily to the abraded surface of a wound, giving the semblance of a purposive dressing of mud. The Andaman Islanders use mud in similar fashion as a protective covering, as some think to guard them from the attacks of mosquitoes; but this is probably only part of the truth, as mud is used as a dressing in countries where there are no mosquitoes, probably for no better reason than that it is always handy. In the case of the Andaman Islanders, dwelling as they are almost on the equator, it is more likely used as a protection against the direct rays of the sun. It is not without interest, in considering the association of the hippopotamus with venesection, that the hippopotamus is one of the animals that has a coloured sweat, carmine in its case.

The vampire bat has shared with the hippopotamus the credit of having taught mankind the art of venesection; such was the belief of the natives of Peru at the time of the discovery of that country. Peter Martyr* describes the rescue from death of a man grievously stricken with pleurisy by the agency of one of these bats, after the human phlebotomist had failed to strike blood. Buffon cites several travellers who assert that large vampire bats suck the blood of men and cattle when asleep; they were believed to render the victim insensible to their bite by agitating the air with their wings and throwing him into a deep sleep. Doubt was thrown on these observations till Darwin, in his *Voyage of the Beagle*, described how he actually saw a vampire bat sucking blood from the withers of one of the camp horses. These bats attack man less frequently than cattle, and usually when asleep and on an exposed foot. They have a capricious taste, for while one person may sleep in the open air with perfect immunity, another will be bitten almost nightly. This trait is common among blood-sucking animals, such as fleas and lice; whether it is due to difference in the blood, or to the relative thinness of the skin, or to some other cause is obscure. The habitual food of these bats is insects, and blood is a prized but infrequent luxury. It is popularly believed in Peru that bites sometimes prove fatal, as the blood continues to flow after the bat has relaxed its hold; may be that, like the leech, it secretes an albumose in its saliva. J. G. Wood says that the wound is sore and inflamed, but never fatal, but he appears to base this conclusion on an estimate of the amount a bat can imbibe, and takes no account of the subsequent loss.

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* *N. H.*, VIII., 40, and XXVIII., 31.

* *De Novo Orbe*, Decade 8, ch. vi, p. 30.

Charleroix,* in his *History of Paraguay*, refers the discovery of blood-letting to the anta, an animal, "who, when he finds himself overstocked with blood, opens one of his veins with the point of a reed." The anta is the South American tapir, which Linnæus described as a sort of terrestrial hippopotamus. Lyddeker says that their hides are often thickly plastered with mud, probably as a protection against insects, and he adds that they are often found wounded by the claws of jaguars, which are their worst foe; these circumstances taken together show how this legend may have originated.

Yet another ascription of the art of bleeding is to the leech, of which Pliny says:† "The action of leeches is looked upon as pretty much the same as that of the cupping-glasses used in medicine, their effect being to relieve the body of superfluous blood, and to open the pores of the skin."

He is a bold man that would venture to assign to any individual, man or animal, the honour, if such it be, of having introduced venesection into medicine; but we must not forget that it may well have originated out of all connexion with medicine, as a part of primitive ritual, and that its place in medicine may be merely that of an ancient ritual survival. There is a well-defined stage in the evolution of sacrifice, at which, instead of sacrifice of the man himself, blood only is taken from him, and his life is spared. He is brought to the altar and gashed by the priest. A modification of this is met in the worship of the Phrygian Attis, where the priest draws blood from his own arm and presents it as an offering to the god; he is both priest and victim. In later stages an animal and then an animal's blood is substituted for a man and a man's blood, and later still a plant or the juice of a plant, for red wine is the blood of the plant.

Human sacrifice and ritual cannibalism seem to have reached their zenith among the ancient Mexicans. The ordinary mode of sacrifice was for the priest to slash open the breast and tear out the heart, then to fling the corpse to the worshippers to feed on in their homes. But at many of their religious fasts it was customary to draw blood from ears, eyelids, nose, lips, arms, legs, and body by thrusting the thorns of aloes into their veins and by passing sharp sticks through the tongue. With such practices prevailing among the priesthood, and with medicine in their hands, one may discern a portal by which blood-letting may have found its way into medicine.

The *rationale* of ritual blood-letting lies in the belief that the soul and the life of man reside in his blood. Even Harvey regarded the blood as the seat of the soul, and we find him in his *Prælectiones* refuting Aristole, who had asserted the primacy of the heart, and laying it down dogmatically that the "soul is the blood." By eating the flesh or drinking the blood of the victim the worshipper eats the body or drinks the blood of the god, for by the act of sacrifice the victim becomes one with the god; the desire for complete union with the god, by commingling with his substance, is a dominant feature of early worship. The gods themselves are constantly rejuvenated by the blood of sacrifices, so that they may perform with unimparied activity the vitally important functions incumbent on them. The Mexicans and Nicaraguans used to make effigies of their gods out of meal kneaded with human blood and devour them sacramentally. Blood was also used as a medium of divination, the Babylonian physicians drawing important conclusions from the behaviour of the blood drawn in blood-letting. It is interesting to find modern pathologists adopting hæmatoscopy afresh, as a means of divining morbid conditions of the subject.

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* Lettsom: *History of the Origin of Medicine.*

† *N. H.*, XXXII., 42.

Whatever the origin of blood-letting, we find the practice firmly established anterior to the earliest medical literature; though not mentioned by Homer, it was well known to Hippocrates, and was an habitual remedy in veterinary medicine in the time of Vergil.*

HIBERNATION.—DITTANY AS A VULNERARY

The hibernating bear inevitably excited the curiosity of the speculative; but far greater interest was displayed in the associated phenomena of hibernation than in the causes that induce the state. Topsel * believed that it was the direct result of eating certain herbs that imparted the faculty of sleeping the whole winter, without food and without sense of cold. In support of his belief he states that a cowherd, who observed a bear eating a certain root, ate some of it himself, and was immediately seized with such a desire to sleep that he lay down and slept all through the winter, waking again only in the spring. Modern research suggests that the state is excited rather by the recurrent failure of the general food-supply than by the ingestion of any special foodstuff, and is limited to those species in which the power to maintain temperature at a permanent average height during sleep has been lost or never acquired.

Aristotle† says that after hibernation bears eat arum, so as to open the bowels, which are empty and collapsed, and that they chew sticks of wood, as though they were cutting teeth, or as Pliny‡ suggests, so as to sharpen their teeth; the latter adds the observation that their eyesight is dimmed, and that to relieve this they invade the nests of bees, so that the stings they receive in their throats may draw away the oppression from their heads. It is not easy to obtain reliable evidence of the behaviour of hibernating bears, as they do not hibernate in captivity, as in our own Zoological Gardens. The eating of ants and of honey was believed to be designed for the purpose of opening the bowels. Pliny, however, fancies that ants are eaten to counteract the effects of the mandrake, when it has been taken inadvertently. This whole sum-total of credulity has provided practical medicine with no hypnotic at all, and no laxative more active than honey, even if its use could be referred to this source. In raiding a nest of bees for honey the bear is quite regardless of the numerous stings it receives, which seems to have induced Pliny's belief, mentioned above, that the stings were solicited for a definite purpose; perhaps some colour was lent to the belief by the knowledge that bears, especially in confinement, are very prone to ophthalmia, and are often totally blinded by it. The grizzly bear's habit, when coming out of hibernation, of standing upright against a tree and scoring the bark with its claws calls for passing notice, as affording a clue to the legend of the chewing of sticks. This primitive method of manicure is doubtless directed to reducing the redundant growth of the nails to serviceable proportions.

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* *Georgics*, III., 457, *seq.*

* *History of Four-footed Beasts*, 1658.

† *Hist. Anim.*, VIII. 7, and IX. 6.

‡ *N. H.*, VIII., 52.

When Æneas was wounded by an arrow, Venus sped to Crete to fetch the herb dittany, wherewith Iapyx should heal his wound. Deer and goats well knew its value as a vulnerary, to remove arrows from their wounds. It is difficult to conceive a stage of mental development at which man employed herbs in preference to his hands for the extraction of arrows, as even animals possess this power in a considerable degree. Elephants have been seen to extract weapons with their trunks, monkeys extract thorns with considerable skill, and dogs remove splinters and thorns, on occasion, with their teeth, though they often present the damaged part for the attention of their master, when they cannot effect it with their teeth.

THE TROCHILUS AND THE CROCODILE

The toilet of the mouth has its legendary origin in the story of the trochilus, which serves also to illustrate the danger of incorrect inference from correct observation. Herodotus, Aristotle, Ælian, and Pliny all tell it in much the same terms. Ælian* says that leeches invade the mouth of the crocodile, as it swims with it open, and cause the animal much discomfort; feeling the need of the medical aid of the trochilus, it swims to the bank and lies there with its jaws agape, whereupon the bird enters and removes the leeches, while the crocodile remains perfectly still so as not to harm it. Pliny suggests that the animal opens its jaws to admit the trochilus because it enjoys the titillation of its movements. Buffon cites a traveller who actually saw the bird enter the crocodile's mouth, which closed behind it each time, and opened again after a while for the bird to emerge. Topsel says that the beast reopens its mouth because the bird carries sharp thorns on its head which prick the crocodile's palate; and the modern Egyptian, according to Leith Adams, says that the reminder is conveyed to the crocodile by the horny spurs of the bird, which Brehm identified as the Egyptian plover. One can scarcely doubt that the performance is due to the bird's quest for palatable food and not to the intelligent demand of the crocodile for the effective scavenging of its teeth.

DISORDERS OF VISION

A rich crop of legend grew up around the properties and disorders of vision. Men were puzzled by the closed eyelids of the young, and suggested various explanations of the mode by which they acquired sight. Pliny* says that puppies are born blind, and that the length of time before they acquire sight depends on the amount of mother's milk; so that the more numerous the puppies the later do they acquire it. In another passage† he states that the swallow employs celandine as an eye-salve to give sight to her young, and that it can restore vision even when the eyeballs have been plucked out. The plant blossoms, he informs us, at the time of the swallow's arrival and withers at its departure. Probably it is from these facts, approximately correct as they are, that it acquired its botanical name "chelidonium," from the Greek χελιδών = a swallow. Pliny recommends its juice blended with Attic honey as a sovereign remedy for films of the eyes, and its virtues have been perpetuated in the use of the term "chelidonia" for eye-salves. The almost dazzling brilliance with which the flower in early spring peeps out from its sombre green cushion of leaves may well have suggested its sympathetic usefulness for dim eyes. Pliny* asserts categorically that it was from the swallow that man learnt the use of celandine for affections of the eye, while Ælian regrets that all their labour to prepare such an eye-salve as swallows use has been in vain.

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* *Nat. Anim.*, III., 2.

* *N. H.*, VIII., 62.

† *Ib.*, XXV., 50.

Hawkweed also enjoyed high repute in diseases of the eye. Pliny says that the hawk distils its juice into her eyes to prevent any dimness of vision, and mixed with human milk he recommends it as a cure for all diseases of the eye. It was necessary to postulate the employment of some such specific remedy to explain the marvellously keen sight of the hawk's eyes. Ælian† has it that "physicians use this same remedy for eye diseases, nor do they deny that they have learnt it from birds, but prefer to profit by the knowledge."

Fennel, too, stood high in favour in the treatment of diseases of the eye. Both Ælian and Pliny‡ were aware of the fact that when a snake changes its skin the discs over the eyes peel off with the rest, and appear as dry lenses in the slough. Pliny seems to say that the snake takes fennel internally to aid exfoliation, and also applies it locally to the eyes to sharpen its sight, and it was this knowledge that led to its use by man as an eye-salve. In later times euphrasia was used similarly in eye diseases, but according to the doctrine of signatures, as it has a black spot on its corolla, it resembles the pupil. When Michael in *Paradise Lost* opens the eyes of Adam to see the future of the world and of his own progeny therein, he

> . . . purged with euphrasie and rue
> The visual nerve, for he had much to see;
> And from the well of life three drops distilled.

Ambroise Paré asserts that the operation for cataract was discovered by means of a goat with a film overlying the pupil tearing off the film accidentally when scratching itself against a thorn, and in consequence recovering its sight; but Ælian and Pliny* reject the accidental character of the goat's discovery. Pliny says that the female goat uses the point of a bulrush and the male the thorn of a bramble for its manipulations, but neither he nor Ælian appreciates the nature of cataract, as Pliny conceives that the cure is due to escape of blood that has surcharged the eyes, and Ælian to the escape of some morbid humour.

The phenomenon of nyctalopia in man was known to the ancients, and goat's liver was eaten for its cure, as it was believed that goats could see by night as well as by day; but in the discussions of the non-medical writers of antiquity there already exists a confusion as to the meaning of the term, some taking it to mean "able to see only at night," and others "not able to see at night." It is an interesting example of the widely prevalent organo-therap of early medicine.

ANIMAL TRANSFORMATION.—FOREKNOWLEDGE OF WEATHER

Melampus is said to have learnt the purgative action of hellebore from observing its action on goats. He used the drug with success in the cure of the daughters of Prœtus, King of Argos, who fancied themselves metamorphosed into cows, to gratify the anger of Hera. Accounts differ as to whether Melampus sent them the milk of goats that had eaten hellebore, as nowadays one might send rodagen, or gave hellebore itself, joined with certain superstitious remedies. Having regard to the action of the drug, the wonder is that the ladies were not still further confirmed in their hallucination. In this fabulous setting we catch a glimpse of the old-time belief in animal transformation, which found its most extravagant expression in the state of lycanthropy. Ovid* describes the transformation of Lycaon into a wolf. Aetius, Avicenna, Oribasius, and others speak of it as frequent. Burton† descants on the wide prevalence of this mental disorder in olden times. The idea of the were-animal struck its deepest roots in Scandinavian and North-German soil; men fancied that by donning the skin of a wolf they could become wolves at pleasure. It is less common in Greek and Latin folk-story, but a familiar example is to be found in the eighth Eclogue, where the lover, by using Pontic herbs, is enabled to see Moeris transformed into a wolf. Lycanthropes, like wolves, often lay hid during the day and at night wandered abroad, haunting the graveyards and barking and howling.

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* *Ib.*, VIII., 41. † *Nat. Anim.*, II., 43.

‡ *Ib.*, IX., 16; and *N. H.*, VIII., 41, and XX., 95.

* *Nat. Anim.*, VII., 14; and *N. H.*, VIII., 76.

Knowledge of the action of hellebore was not the only gift bestowed on Melampus by animals. His gift of divination he owed to some serpents that he rescued from death and reared; they in return cleansed his ears while he slept, with their tongues, so that when he awoke he understood the language of birds, and so learnt the mysteries of the future that it is their privilege to foreknow. Melampus had at least one valuable remedy in his armamentarium for he cured one of the Argonauts of sterility with steel drops, administering the rust of iron in wine for ten days. In ancient medicine prognosis was esteemed as highly as healing, and man desired to share with animals, and especially with birds, their faculty of foreknowledge. Nature seemed to have endowed them with power to presage the weather by observing the skies—a gift of first importance to a primitive agricultural community. Vergil* mentions, as foretelling the coming of rain, the flight of cranes and swallows, the heifer scanning the face of the heavens, the clamour of rooks and of ravens, and the plaintive chatter of frogs in the fens. In Germany even now green-frogs in tall glass bottles are used as barometers; in fine weather they ascend, in wet weather they descend little wooden ladders, each step of which marks a degree. Buckland succeeded in using leeches similarly for the same purpose. Many an old maid to-day will tell you that her cat keeps close curled up before the fire when snow is coming.

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* *Metamorph.*, I., 7.

† *Anatomy of Melancholy*, ed. 1804, vol. I, p. 13.

* *Georg.* I., 378 *seq.*